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Indian Standard

(Reaffirmed 2002)

SPECIFICATION FOR MOULDS SUITABLE FOR CAST RESIN BASED TERMINATIONS FOR CABLES FOR VOLTAGES UP TO AND INCLUDING 1 100 V

(First Revision)

UDC 621·315 687 : 621·744·3

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

Gr 2

July 1988

Indian Standard

SPECIFICATION FOR MOULDS SUITABLE FOR CAST RESIN BASED TERMINATIONS FOR CABLES FOR VOLTAGES UP TO AND INCLUDING 1 100 V

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 7 December 1987, after the draft finalized by the Power Cables Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was first published in 1980. This revision is being undertaken to take into account the experience gained during the implementation of this standard.

0.3 The cast resin based terminations are in use for different types of cables. In order to ensure that enough space is available for making termination of cables and to ensure adequate clearances and proper bending of cable cores without undue strain, it is very essential to specify the minimum dimensions of moulds for terminations.

0.4 The main object of this standard is to specify envelope dimensions of indoor termination casting moulds to ensure sufficient inner space for maintaining adequate clearances. Only vital minimum dimensions are shown in the drawing. The manufacturer is free to adopt all other dimensions as also the general shape of the mould.

0.5 The standard has been prepared to rationalize the types and sizes of moulds for cast resin indoor terminations suitable for thermoplastic paper insulated and elastomeric cables.

0.6 The standard does not cover the actual terminating methods or the specifications of materials and components, such as plastic moulds, casting resin system, etc, which are used in termination.

0.7 As far as possible, various sizes of cables are covered under a single type of mould. Table 2 regarding selection of moulds is only for the guidance of the users.

0.8 The minimum thickness of moulds has not been specified since it is possible to adopt ribbed construction to get more strength of the mould. Also, the strength to the joint is given by the cast resin rather than the mould.

0.9 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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*Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard covers the requirements and dimensions for moulds of cast resin based terminations for the following:

a) For power cables manufactured in accordance with IS : 692-1973*, IS : 694-1977†, IS : 1554 (Part 1)-1976‡, IS : 1596-1977§, IS : 4288-1982*, IS : 7098 (Part 1)-1977† and IS : 9968 (Part 1)-1981‡ for voltages up to and including 1 100 V.

b) For control cables up to 61 cores of size up to 2·5 mm^2 manufactured in accordance with IS : 1554 (Part 1)-1976§.

2. MATERIAL

2.1 Plastic Mould — Plastic mould shall comprise two halves formed from plastic sheet such as polyethylene or any other suitable plastic material.

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*Specification for paper insulated lead-sheathed cables for electricity supply (*second revision*).

†Specification for PVC insulated cables for working voltages up to and including 1 100 V (*second revision*).

‡Specification for PVC insulated (heavy duty) electric cables : Part 1 For working voltages up to and including 1 100 V (*second revision*).

§Specification for polyethylene insulated cables for working voltages up to and including 1 100 V (*second revision*).

*Specification for PVC-insulated (heavy duty) electric cables with solid aluminium conductors (for voltages up to and including 1 100 V) (*first revision*).

†Specification for crosslinked polyethylene insulated PVC sheathed cables : Part 1 For working voltages up to and including 1 100 volts.

‡Specification for elastomer insulated cables : Part 1 For working voltages up to and including 1 100 volts.

§Specification for PVC insulated (heavy duty) electric cables : Part 1 For working voltages up to and including 1 100 V (*second revision*).

2.1.1 Subject to mutual agreement between the user and the supplier, alternative materials, such as resin bonded fibre glass laminate, reinforced synthetic polymer or elastomer coated sheet metal may be used.

3. DIMENSIONS

3.1 The minimum dimensions of the moulds shall be as shown in Fig. 1 and Table 1.

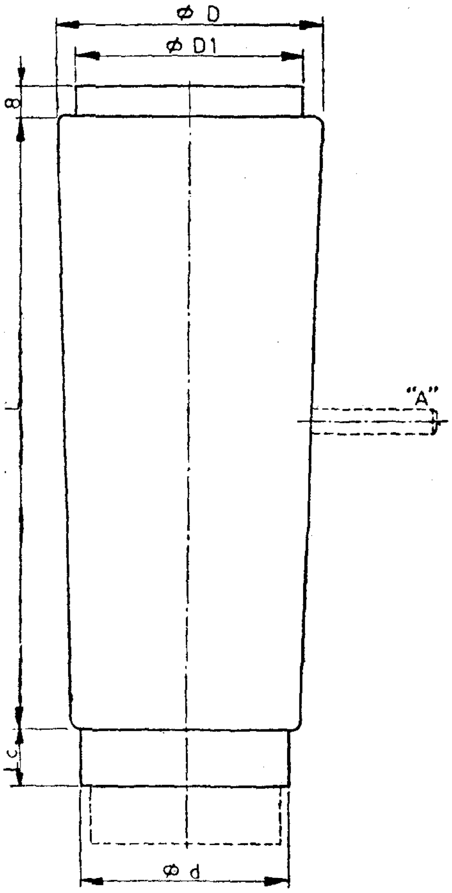

FIG. 1 MINIMUNM DIMENSION OF MOULD

3.2 Provision for taking out the armour connection for earthing is shown with dotted lines in Fig. 1 at "*A*" which may be located at any convenient position depending on the method of *terminating* the armour and shall be decided by the manufacturer.

3.3 The mould may, at the option of the manufacturer, be provided with an additional step at the cable entry for terminating smaller sizes of cables.

TABLE 1 MINIMUM DIMENSIONS OF MOULD

(*Clauses* 3.1 *and* 6.4)

MOULD TYPE/SIZE	MINIMUM DIMENSIONS, mm				
	D	D_1	d	L	L_c
(1)	(2)	(3)	(4)	(5)	(6)
E1	36	28	25	80	10
E2	50	40	38	115	10
E3	58	48	40	130	10
E4	70	60	55	160	15
E5	80	70	65	175	15
E6	95	85	80	185	15
E7	110	100	90	215	15

4. SELECTION

4.1 For each mould designation, Table 2 gives the type and size of the cable for which it is suited. The user may select the mould suitable for his application from this table.

5. MARKING

5.1 Each half of the mould shall be marked by embossing or indenting the following:

a) Manufacturer's name and/or trade name, and

b) Type number in accordance with Table 1 of this standard.

5.1.1 The moulds may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they' have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

TABLE 2 SELECTION OF MOULDS

(*Clauses* 0.7 *and* 4.1)

SUITABLE MOULD TYPE NO.	SUITABLE FOR THERMOSETTING, ELASTOMERIC OR PILC CABLE SIZE, MM^2				CONTROL CABLES UP TO AND INCLUDING 2·5 mm^2
	1—CORE	2—CORE	3—CORE	3½ and 4—CORE	
(1)	(2)	(3)	(4)	(5)	(6)
E1	Up to 70	1·5, 2·5, 4·6, 10	1·5, 2·5, 4·6, 10	1.5, 2·5, 4·6	Up to 7 cores
E2	95, 120	16, 25, 35, 50	16, 25, 35	10, 16, 25	8 to 16
E3	150, 185, 225*	70, 95, 120	50, 70	35, 50	17 to 27
E4	240, 300, 400	150, 185, 225*	95, 120, 150	70, 95, 120	28 to 30
E5	—	240, 300	185, 225*, 240	150, 185	31 to 44
E6	—	400	300, 400	225*, 240, 300	45 to 61
E7	—	—	—	400	—

*For PILC cables only.

6. TESTS

6.1 Classification of Tests

6.1.1 *Type Tests* — The following shall constitute the type tests:

a) Marking (**6.2**),
b) Workmanship (**6.3**), and
c) Checking of dimensions (**6.4**).

6.1.2 *Routine Tests* — The following shall constitute the routine tests:

a) Marking (**6.2**), and
b) Workmanship (**6.3**).

6.2 Marking — The moulds shall be checked for conformity to 5.

6.3 Workmanship — The moulds shall be free from defects such as deformations.

6.4 Checking of Dimensions — The moulds shall be checked for conformity to dimensions shown in Fig. 1 and Table 1.

7. SAMPLING

7.1 A recommendatory sampling plan and criteria for acceptance are given in Appendix A.

APPENDIX A

(*Clause* 7.1)

RECOMMENDED SAMPLING PLAN

A-1. LOT

A-1.1 In any consignment, all the plastic moulds of the same type and manufactured by the same factory, during the same period and using the same material, shall constitute a lot.

A-1.2 Samples shall be taken from each lot and tested for conformity.

A-2. SCALE OF SAMPLING

A-2.1 The number of plastic moulds to be selected from each lot shall be in accordance with col 1 and 2 of Table 3. The plastic moulds shall be selected at random (*see* IS : 4905-1968*).

A-3. NUMBER OF TESTS AND CRITERIA FOR ACCEPTANCE

A-3.1 All the plastic moulds selected shall be checked for dimensions. Plastic mould failing to meet any one of the dimensions given in the specification shall be called as defective. If the number of defectives found is less than or equal to the permissible number of defectives (col 3 of Table 3), the lot shall be accepted; otherwise the lot shall be rejected.

TABLE 3 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

(*Clause* A-2.1)

LOT SIZE (1)	SAMPLE SIZE (2)	PERMISSIBLE NO. OF DEFECTIVES (3)
Up to 100	5	0
101 to 500	8	0
501 to 1 000	13	1
1 001 and above	20	1

NOTE — Whenever the lot size is less than 5, all the plastic moulds taken shall be tested.

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*Methods for random sampling.

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